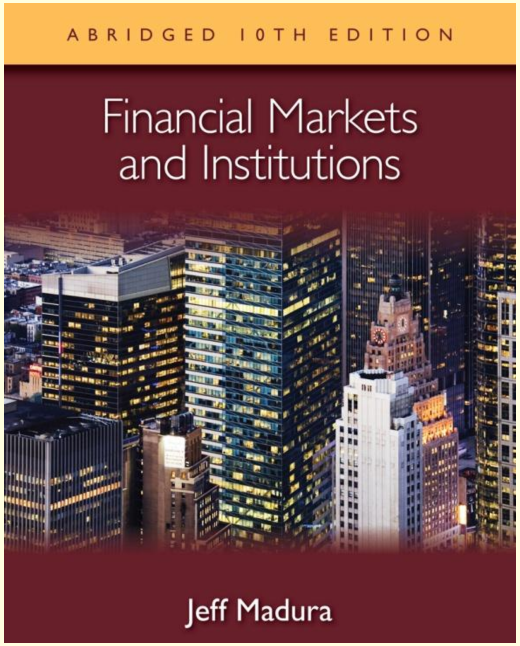
Financial Markets and Institutions

Abridged 10th Edition

by Jeff Madura



20 Bank Performance

Chapter Objectives

- identify the factors that affect the valuation of a commercial bank
- compare the performance of banks in different size classifications over recent years
- explain how to evaluate the performance of a particular bank based on financial statement data

Valuation of a Commercial Bank

A commercial bank's value is the present value of its future cash flows

$$V = \sum_{t=1}^{n} \frac{e(CF_t)}{(1+k)^t}$$

$$\Delta V = f\,(\Delta E(CF), \Delta k)$$

where $E(CF_t)$ represents the expected cash flow to be generated in period t, and k represents the required rate of return.

Factors That Affect Cash Flows

1. Change in Economic Growth

Can enhance a commercial bank's cash flows by increasing the household or business demand for loans.

2. Change in the Risk-Free Interest Rate

- If the risk-free interest rate decreases, other market rates may also decline, which may result in a stronger demand for the commercial bank's loans.
- Commercial banks rely heavily on short-term deposits as a source of funds, and the rates paid on these deposits are typically revised in accordance with other interest rate movements.

Factors That Affect Cash Flows (Cont.)

3. Change in Industry Conditions

- One of the most important industry characteristics that can affect a commercial bank's cash flows is regulation.
- Another important industry characteristic that can affect a bank's cash flows is technological innovation, which can improve efficiencies and thereby enhance cash flows

4. Management Abilities

- The only one of the four characteristics over which the bank has control.
- The bank can select its managers and its organizational structure.

Factors That Affect the Required Rate of Return by Investors

1. Change in the Risk-Free Rate

- When the risk-free rate increases, so does the return required by investors.

2. Change in the Risk Premium

- If the risk premium on a commercial bank rises, so will the required rate of return by investors who invest in the bank.

3. Impact of the Credit Crisis on Bank Valuations

- Bank valuations overall were affected during the credit crisis.

Exhibit 20.1 Framework for Valuing a Commercial Bank

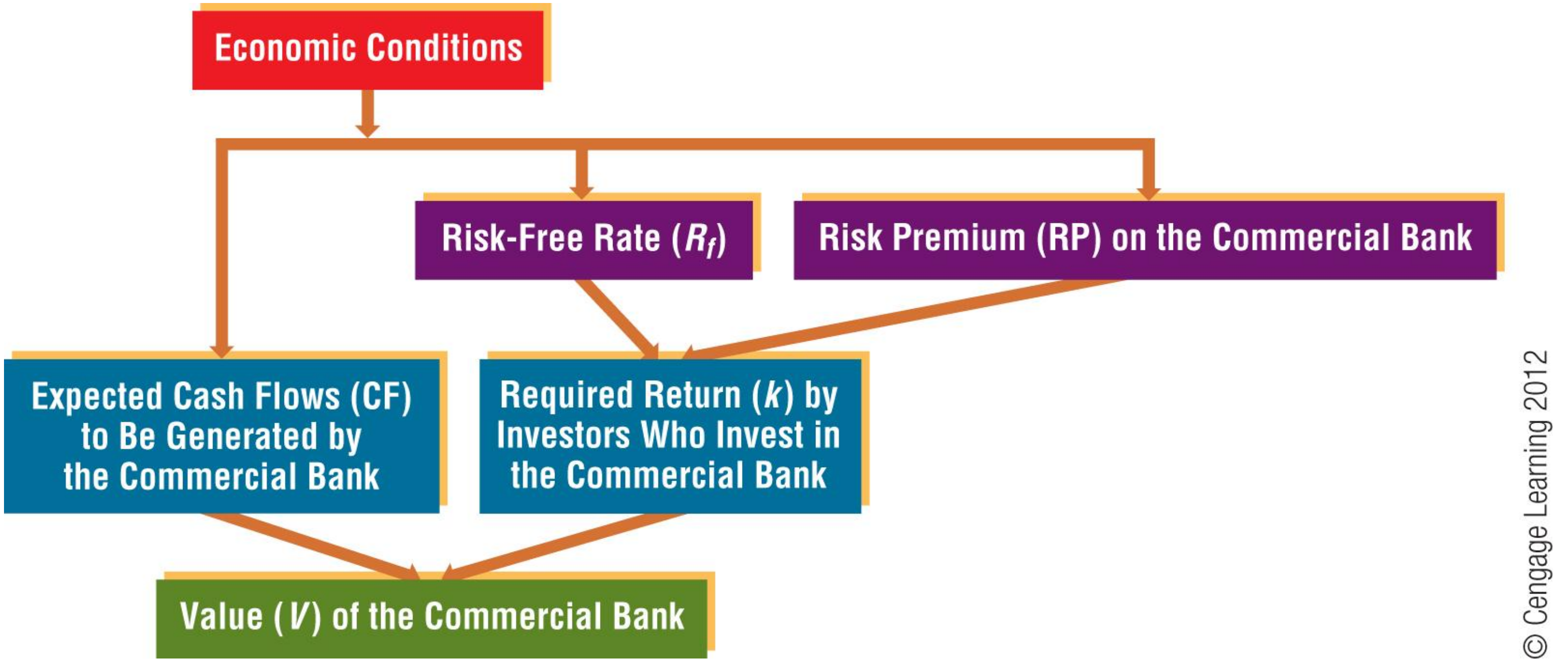
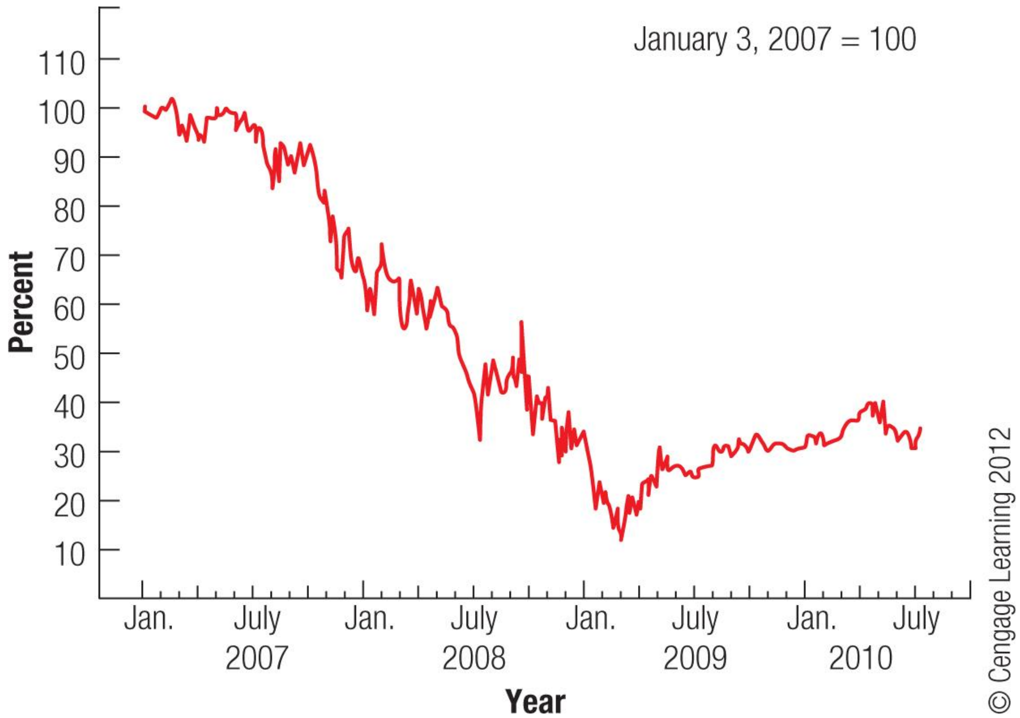


Exhibit 20.2 Bank Equity Index over Time



Source: Federal Reserve and Standard & Poor's.

Performance of Banks in Aggregate

Interest Income and Expenses

- Gross interest income is interest income generated from all assets. Gross interest income tends to increase when interest rates rise and to decrease when interest rates decline.
- Gross interest expenses represent interest paid on deposits and on other borrowed funds. Gross interest expenses will normally be higher when market interest rates are higher.
- Net interest income is the difference between gross interest income and interest expenses and is measured as a percentage of assets (See Exhibit 20.4).

Exhibit 20.3 Performance Summary of All Insured Commercial Banks, 2006–2010

ITEM	2006	2007	2008	2009	2010
1. Gross interest income	5.85%	5.94%	4.88	4.05	5.10
2. Gross interest expenses	2.80	2.99	1.96	1.03	1.21
3. Net interest income	3.05	2.95	2.92	3.02	3.89
4. Noninterest income	2.36	2.10	1.81	2.07	.85
5. Loan loss provision	.27	.54	1.48	1.95	.82
6. Noninterest expenses	3.13	3.09	3.09	3.00	3.05
7. Securities gains (losses)	–.01	–.01	–0.13	–0.01	.01
8. Income before tax	2.00	1.41	0.03	0.12	.88
9. Taxes	.61	.43	0.01	0.04	.26
10. Net income	1.39	.98	0.02	0.08	.62
11. Cash dividends provided	.87	.82	0.37	0.37	.39
12. Retained earnings	.52	.16	–0.35	–0.29	.23

Note: All items in the exhibit are estimated as a proportion of total assets.

Source: *Federal Reserve.*

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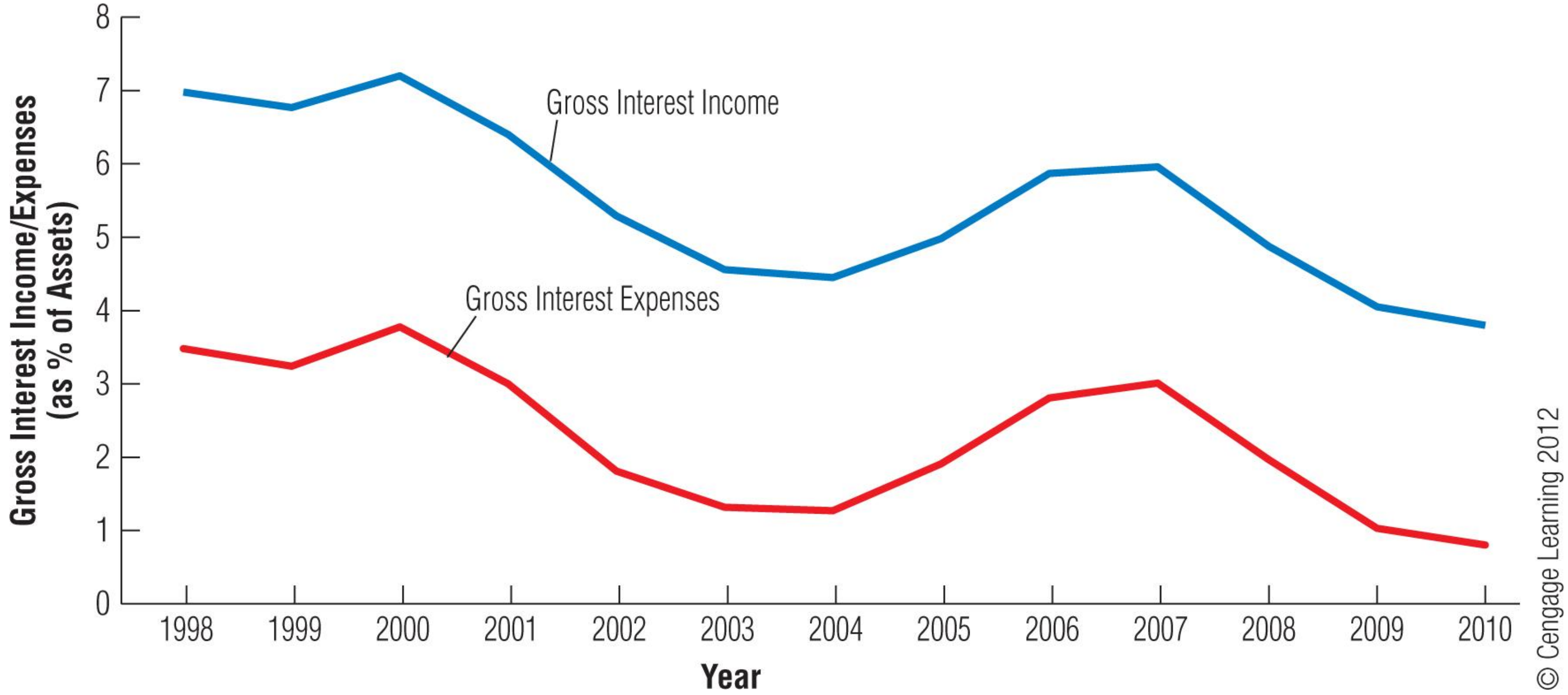
Source: Federal Reserve.

Exhibit 20.4 Comparison of Gross Interest Income and Gross Interest Expenses (as a Percentage of Assets) over Time



Performance of Banks in Aggregate

Noninterest Income and Expenses

- Noninterest income results from fees charged on services provided, such as lockbox services, banker's acceptances, cashier's checks, and foreign exchange transactions.
- Noninterest expenses include salaries, office equipment, and other expenses not related to the payment of interest on deposits.
- Securities gains and losses result from the bank's sale of securities.
- Income before tax is net interest income, noninterest income, and securities gains less the provision for loan losses and noninterest expenses.

Net Income

- **Return on Assets** - The ROA is influenced by all income statement items and the policies that affect those items.
- **Return on Equity**
  - ROE is affected by the same income statement items that affect ROA and by the bank's degree of financial leverage.
  - The leverage measure is the inverse of the capital ratio (when only equity counts as capital).

$$ROE = ROA \times Leverage\ Measure$$

$$\frac{\text{Net Income}}{\text{Equity Capital}} = \frac{\text{Net Income}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Equity Capital}}$$

Performance of Banks in Aggregate

Net Income

- **Impact of the Credit Crisis on Net Income**
  - Many commercial banks held mortgages as assets and experienced late payments or defaults.
  - Many banks had invested in mortgage-backed securities, which generated poor returns because of late payments or defaults.
  - Some commercial banks had sold credit default swap contracts, which obligated them to cover damages resulting from defaults on mortgage-backed securities.
  - Some commercial banks experienced a reduction in loan demand, because businesses reduced or delayed their expansion plans

How to Evaluate a Bank's Performance

The Federal Reserve provides bank performance summaries for banks in four size classifications money center banks, large banks, medium banks, and small banks.

Examination of Return on Assets

The ROA will usually reveal when a bank's performance is not up to par, but it does not indicate the reason for the poor performance.

Exhibit 20.5 Influence of Bank Policies and Other Factors on a Bank's Income Statement

INCOME STATEMENT ITEM AS A PERCENTAGE OF ASSETS	BANK POLICY DECISIONS AFFECTING THE INCOME STATEMENT ITEM	UNCONTROLLABLE FACTORS AFFECTING THE INCOME STATEMENT ITEM
(1) Gross interest income	• Composition of assets • Quality of assets • Maturity and rate sensitivity of assets • Loan pricing policy	• Economic conditions • Market interest rate movements
(2) Gross interest expenses	• Composition of liabilities • Maturities and rate sensitivity of liabilities	• Market interest rate movements
(3) Net interest income = (1) – (2)		
(4) Noninterest income	• Service charges • Nontraditional activities	• Regulatory provisions
(5) Noninterest expenses	• Composition of assets • Composition of liabilities • Nontraditional activities • Efficiency of personnel • Costs of office space and equipment • Marketing costs • Other costs	• Inflation
(6) Loan losses	• Composition of assets • Quality of assets • Collection department capabilities	• Economic conditions • Market interest rate movements
(7) Pretax return on assets = (3) + (4) – (5) – (6)		
(8) Taxes	• Tax planning	• Tax laws
(9) After-tax return on assets = (7) – (8)		
(10) Financial leverage, measured here as (assets/equity)	• Capital structure policies	• Capital structure regulations
(11) Return on equity = (9) × (10)		

Exhibit 20.6 Breakdown of Performance Measures

INCOME STATEMENT ITEM AS A PERCENTAGE OF ASSETS	BANK POLICY DECISIONS AFFECTING THE INCOME STATEMENT ITEM	UNCONTROLLABLE FACTORS AFFECTING THE INCOME STATEMENT ITEM
(1) Gross interest income	• Composition of assets • Quality of assets • Maturity and rate sensitivity of assets • Loan pricing policy	• Economic conditions • Market interest rate movements
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(6) Loan losses	• Composition of assets • Quality of assets • Collection department capabilities	• Economic conditions • Market interest rate movements
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(8) Taxes	• Tax planning	• Tax laws
(9) After-tax return on assets = (7) – (8)		
(10) Financial leverage, measured here as (assets/equity)	• Capital structure policies	• Capital structure regulations
(11) Return on equity = (9) × (10)		

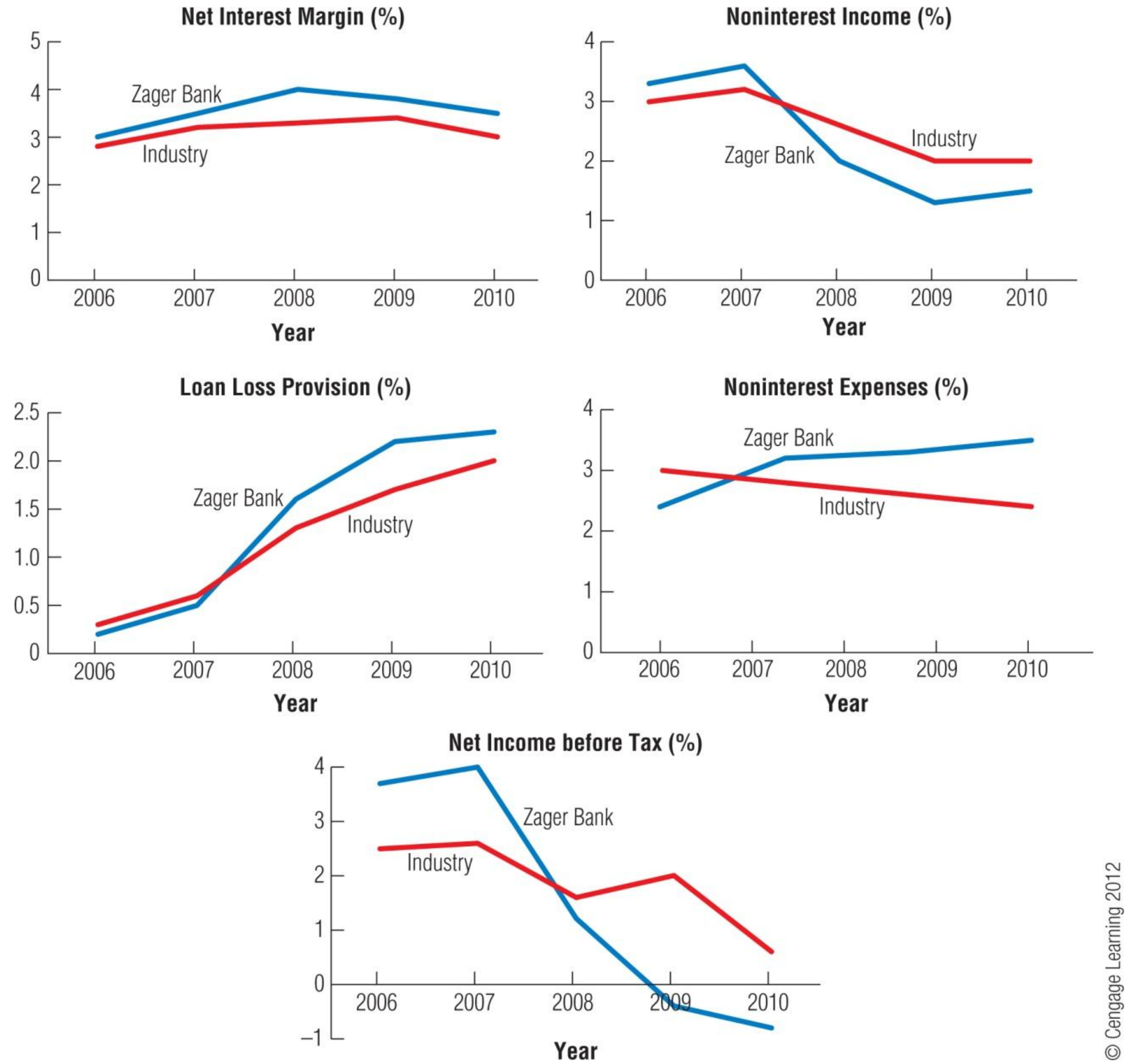
How to Evaluate a Bank's Performance

Application:

Example of Zager Bank

- Zager bank is a medium size bank
- Aggressive management style can be viewed as risky due to limited collateral and cash flow situation.
- The bank charges high interest rates on loans because the borrowers do not have alternative lenders.
- Strategy was successful during strong economic conditions.
- When economy weakened in 2008, borrowers had trouble repaying their loans.

Exhibit 20.7 Comparison of Zager Bank's Expenses and Income to the Industry



SUMMARY

- A bank’s value depends on its expected future cash flows and the required rate of return by investors who invest in the bank. The bank’s expected cash flows are influenced by economic growth, interest rate movements, regulatory constraints, and the abilities of the bank’s managers. The required rate of return by investors who invest in the bank is influenced by the prevailing interest rate (which is affected by other economic conditions) and the risk premium (which is affected by economic growth, regulatory constraints, and the management abilities of the bank). In general, the value of commercial banks is favorably affected by strong economic growth, declining interest rates, and strong management abilities.

SUMMARY (Cont.)

- A bank's performance can be evaluated by comparing its income statement items (as a percentage of total assets) to a control group of other banks with a similar size classification. The performance of the bank may be compared to the performance of a control group of banks. Any difference in performance between the bank and the control group is typically because of differences in net interest margin, loan loss reserves, noninterest income, or noninterest expenses. If the bank's net interest margin is relatively low, it either is relying too heavily on deposits with higher interest rates or is not earning adequate interest on its loans. If the bank is forced to boost loan loss reserves, this suggests that its loan portfolio may be too risky. If its noninterest income is relatively low, the bank is not providing enough services that generate fee income. If the bank's noninterest expenses are relatively high, its cost of operations is excessive. There may be other specific details that make the assessment more complex, but the key problems of a bank can usually be detected with the approach described here.

SUMMARY (Cont.)

- A common measure of a bank's overall performance is its return on assets (ROA). The ROA of a bank is partially determined by movements in market interest rates, as many banks benefit from lower interest rates. In addition, the ROA is highly dependent on economic conditions, because banks can extend more loans to creditworthy customers and may also experience a higher demand for their services. Another useful measure of a bank's overall performance is return on equity (ROE). A bank can increase its ROE by increasing its financial leverage, but its leverage is constrained by capital requirements.